

ABSTRACT

Interconnection elements for electronic components, exhibiting desirable mechanical characteristic (such as resiliency, for making pressure contacts) are formed by using a shaping tool (512) to shape an elongate core element (502) of a soft material (such as gold or soft copper wire) to have a springable shape (including cantilever beam, S-shape, U-shape), and overcoating the shaped core element with a hard material (such as nickel and its alloys), to impart to desired spring (resilient) characteristic to the resulting composite interconnection element. A final overcoat of a material having superior electrical qualities (e.g., electrical conductivity and/or solderability) may be applied to the composite interconnection element. The resulting interconnection elements may be mounted to a variety of electronic components, including directly to semiconductor dies and wafers (in which case the overcoat material anchors the composite interconnection element to a terminal (or the like) on the electronic component), may be mounted to support substrates for use as interposers and may be mounted to substrates for use as probe cards or probe card inserts. The shaping tool may be an anvil (622) and a die (624), and may nick or sever successive shaped portions of the elongate elements, and the elongate element may be of an inherently hard (springy) material. Methods of fabricating interconnection elements on sacrificial substrates are described. Methods of fabricating tip structures (258) and contact tips at the end of interconnection elements are also described.